CLAIMS

1   1.   A computer system, comprising:

2   a general purpose transmitting computer, the computer including logic for undertaking

3   method acts to transfer data to a general purpose receiving computer in communication with

4   the transmitting computer, the method acts undertaken by the logic including:

5   accessing at least one data tree; and

6   generating a message including plural elements, each element being a node element

7   representative of a respective node of the tree or a leaf element representative of a respective

8   leaf of the tree, each node element having an associated size value indicating a number of

9   leaves or nodes depending from the respective node, each leaf element having an associated

10   size value indicating a size of a value in the respective leaf.

2.   The computer of Claim 1, wherein the method acts undertaken by the logic further
include transferring the message from the transmitting computer to the receiving computer.

1   3.   The computer of Claim 1, wherein each element further includes a name representative

2   of the respective node.

1   4.   The computer of Claim 3, wherein each element further includes a name size preceding

2   the name, the name size indicating a size of the associated name.

1   5.   The computer of Claim 1, wherein each element further includes one of only two data

2   types, node and leaf.

1   6.   The computer of Claim 1, wherein the method acts undertaken by the logic are

2   executed in response to a remote procedure call (RPC) over the Internet.

1   7.   The computer of Claim 1, wherein the generating act undertaken by the logic is

2   accomplished by a depth first traversal of the tree.

8.   The computer of Claim 1, wherein each leaf element further includes a value

representing a value of the associated leaf.

9.   A computer-implemented data transfer protocol, comprising:

traversing a data tree;

generating message elements representing nodes and leaves in the tree, each message

4   element including at least one size value; and

5   transmitting the message elements to effect at least one remote procedure call (RPC).

1   10.   The computer-implemented method of Claim 9, wherein each element is either a node

2   element representative of a respective node of the tree or a leaf element representative of a respective

3   leaf of the tree, each node element having an associated size value indicating a number of leaves or

4   nodes depending from the respective node, each leaf element having an associated size value

5   indicating a size of a value in the respective leaf.

1   11.   The method of Claim 10, wherein each element further includes a name representative

2   of the respective node.

1   12.   The method of Claim 11, wherein each element further includes a name size preceding

2   the name, the name size indicating a size of the associated name.

        13.   The method of Claim 12, wherein each element further includes one of only two data

types, node and leaf.

        14.   The method of Claim 9, wherein the traversing act is accomplished by a depth first

traversal of the tree.

1   15.   The method of Claim 10, wherein each leaf element further includes a value

2   representing a value of the associated leaf.

1   16.   A computer program device comprising:

2   a computer program storage device readable by a digital processing apparatus; and

3   a program on the program storage device and including instructions executable by the digital

4   processing apparatus for performing method acts for transferring data representative of a tree structure

5   over a wide area computer network, the program comprising:

6   logic means for generating a platform independent message representing a data tree

7   and a size of at least one characteristic of the data tree.

1   17. The computer program device of Claim 16, wherein the tree includes at least one node

2   and at least one leaf, and the characteristic is one of: a number of tree elements under a node, or a

3   size of a value of a leaf.

18. The computer program device of Claim 17, wherein the means for generating

undertakes a depth-first traversal of the tree.

19. The computer program device of Claim 17, further comprising logic means for

transferring the message from a transmitting computer to a receiving computer.

1   20. The computer program device of Claim 17, wherein the message includes at least one

2   node element representative of a respective node and at least one leaf element representative of a

3   respective leaf, and each element further includes a name representative of the respective node.

1   21. The computer program device of Claim 20, wherein each element further includes a

2   name size preceding the name, the name size indicating a size of the associated name.

1   22.   The computer program device of Claim 17, wherein the message includes at least one

2   node element representative of a respective node and at least one leaf element representative of a

3   respective leaf, and further wherein each element further includes one of only two data types, node

4   and leaf.

1   23.   The computer program device of Claim 17, wherein the message includes at least one

2   node element representative of a respective node and at least one leaf element representative of a

3   respective leaf, and further wherein each leaf element further includes a value representing a value

4   of the associated leaf.

1   24.   The computer of Claim 7, wherein the message is arranged in accordance with the

2   depth first traversal of the tree to represent tree structure information.

1   25.   The method of Claim 9, comprising arranging the message elements in accordance

2   with the traversing act to represent tree structure information.

1   26.   The computer program device of Claim 16, wherein the message is arranged to

2   represent information about the structure of the tree.